Five-Year Review Report

Five-Year Review Report
for
57th & N. Broadway Site
Wichita-Park City Kansas

September 2004

Prepared By:
United States Environmental Protection Agency
Region 7
Kansas City, Kansas

Approved by:

Cecilia Tapia, Director
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U.S. EPA Region 7

Date 5/24/04

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List of Acronyms

CERCLA	Comprehensive Environmental Response, Compensation, And Liability Act.
DCE	1,1-Dichloroethene
EPA	U.S. Environmental Protection Agency
KDHE	Kansas Department of Health and Environment
MCL	Maximum Contaminant Level
NCP	National Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
OU	Operable Unit
PCE	Tetrachloroethene
ppb	Parts per billion
RA	Remedial Action
RAO	Remedial Action Objective
RI	Remedial Investigation
ROD	Record of Decision
RPM	Remedial Project Manager
SARA	Superfund Amendments and Reauthorization Act
SSC	State Superfund Contract
SVE	Soil Vapor Extraction
TCE	Trichloroethene
VOC	Volatile Organic Compound

Executive Summary

The remedy for the 57th & N. Broadway site located in northern Wichita and Park City, Kansas, called for the treatment and containment of contaminated ground water and the treatment of two areas of contaminated soil which are potential sources of further contamination of the ground water. In addition, a number of residents previously using contaminated or potentially contaminated ground water were connected to a public water supply. The connections to the public water supply were started and completed in the summer of 1998. The in-well treatment systems chosen to treat and contain the contaminated ground water were completed in the spring of 2002. Soil Vapor Extraction (SVE) was selected as the means of treating the contaminated soils. The SVE was the final construction project for the site remedy and was completed in August of 2002 resulting in a construction completion for the site. Minor adjustments to the SVE systems have been necessary to optimize their operation, and additional adjustments may continue to be necessary in the future. In addition, the presence of 'oil' in some of the SVE system's wells in the Midland System requires periodic bailing. It is anticipated that this will diminish over time as the oil is removed from the soil's pore space and ground water surface. The oil does not significantly impact the operation of the SVE system beyond the wells in which it is found. Bailing of the oil from the SVE system wells is not an optimum activity. A plan to optimize the removal of oil from the system is being developed and will soon be implemented, thus improving the overall efficiency of the system.

Although the in-well strippers for treating contaminated ground water are functioning as designed during operation, there was difficulty with the systems shutting down due to excessive temperatures. This issue has been addressed and appears to be substantially resolved. An apparent design flaw in the system resulted in inadequate air exchange between the exterior and the interior of the equipment housing, thus resulting in elevated temperatures in the equipment housing. The temperature buildup triggered the automatic shutdown mechanism until the unit cooled below the set point at which time the systems are restarted automatically. Additional venting directing outside air directly onto the motor has resulted in the systems functioning except during periods of extreme high temperatures. Once ambient temperatures drop below 100 degrees, the systems restart automatically.

This five-year review was triggered by the beginning of installation of public water service to residences of the Riverview neighborhood in June of 1998, which was the first Remedial Action start for the site. All systems are functioning, however, operational difficulties described above for the in-well treatment systems and the SVE extraction wells have occurred and varying adjustments to the system are made as needed. Levels of contaminant in the ground water and the vented soil vapor are generally decreasing, thus indicating that both the SVE and the in-well stripper systems are in place and functioning.

The plume is not spreading laterally and endangering anyone using ground water as a source of drinking water. Those within the plume are connected to public water; therefore, the plume is not currently impacting human health, nor does it show evidence of adverse impact on the environment. The next five-year review will be in 2009. County regulations prohibit the installation of new wells in the contaminated plume.

The delay in the issuing of this five-year review was the result of the decision to arrive at consensus with the state of Kansas concerning the appropriate approach to resolve the issues discussed in the Issues and the Recommended Follow-up Sections of the report prior to completing the report. Although all actions have not been completed, the Environmental Protection Agency (EPA) and the state have reached consensus on the necessary actions to resolve the issues with the site.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name: 57th & N. Broadway Site		
EPA ID: KSD981710247		
Region : 7	State: KS	Wichita-Park City/ Sedgwick County
SITE STATUS		
NPL status: __X__Final __Deleted _____ Other (specify)		
Remediation status (choose all that apply) _____Under Construction __X___Operating ___Complete		
Multiple OUs? __X_YES _NO	Construction Completion Date 9 /10/2002	
Has site been put into reuse ____ YES _X_NO Site use continues as was.		
REVIEW STATUS		
Lead agency: _X_ EPA ___State ___Tribe ___Other Federal Agency _____		
Author name: Steven E. Kinser		
Author title: Remedial Project Manager	Author affiliation: U.S. EPA, Region 7	
Review Period: 10/2002 to 9/2004		
Date(s) of site inspection: October 10, 2002, January 9, 2003, and April 10, 2003.		
Type of review: _X Post SARA ____Pre-SARA ___NPL-Removal Only ___Non-NPL Remedial Action Site ___NPL State/Tribe-lead ___Regional Discretion		
Review number: _X__1 (first) ___ 2 (second) ____3 (third) ___Other (specify)		
Triggering Action: _X Actual RA On-site Construction at OU # 2 ___Actual RA Start at OU# ___ ___Construction Completion _Previous Five-Year Review Report ___Other (specify)		
Triggering action 6/29/1998		
Due date (five years after triggering action date): 6/29/2003		

Issues:

1. All systems at the site are constructed and functioning. Not all systems are operating as expected, however, problems and ongoing maintenance issues are being resolved as they appear. There are problems with high temperature shut downs on the in-well strippers, however, the cause of that problem has been diagnosed and a remedy designed and installed.

2. Tetrachloroethene (PCE) has been detected in the western edge of the northern plume. PCE contamination was found in monitoring wells and treatment wells in the western edge of the plume along 53rd Street at levels considerably higher than has been encountered in these or any other wells for a significant amount of time.

3. There continues to be concern by some that increased usage of a cross-gradient well field, the Bel Air well field, will draw contamination from the plume to the well field. This well field is currently supplying drinking water to the residents in the contaminated area. The pumping rate on the Bel Aire well field has recently been increased to five to six times previous levels. It is unknown what the effect of this increased pumping will have on the contaminant plume. However, it is expected that the existing sentry wells will detect contaminants before they reach the PWS wells; and we anticipate that the water district's treatment system will be able to address these contaminants. At this time and in the immediate future, it is not anticipated that water from the contaminant plume will be used in the public water supply. Contaminant levels in the Riverview plume continue to fall. No contaminants above the Maximum Contaminant Levels (MCLs) were found in the October monitoring well sampling in any of the Riverview area wells.

4. The SVE system at Wilko is functioning as expected, and no significant problems have been encountered.

5. We have experienced the accumulation of Volatile Organic Compound- (VOC) contaminated oil in some of the wells at the Midland Refinery SVE system. The oil is bailed out and properly disposed on a regular basis. Periodic bailing of the oil from the SVE system wells is probably not an optimum activity.

6. Ongoing adjustments of the SVE system's operation is necessary to assure the optimum conditions are being maintained.

7. The Kansas Department of Health and Environment (KDHE) has been concerned about the effectiveness of the ground water treatment system, as it does not appear to be completely reducing contaminants in water moving through it.

Recommendations and Follow-up Actions:

Hazards at this site are being remediated. On-site treatment systems are treating and/or containing the contaminated ground water as well as the contaminated soils which have a potential for further impacting the ground water. Any future use of the site should take these issues into consideration. The following recommendations correspond to the numbered issues from the preceding section.

1. The EPA will continue to closely monitor all in-well treatment systems and evaluate monitoring and maintenance reports, following up with necessary actions.

2. Operation and Maintenance (O&M) activities are underway and will be continuously monitored to ensure that the in-situ wells operate optimally. This corrects a deficiency that allowed the efficiency of the in-well system to be seriously compromised. Fouling of the wells has significantly impacted their ability to treat the contaminated ground water. The wells are being cleaned and repaired. Procedures have been put in place to prevent future lapses.

3. Continued monitoring of the plume is necessary to insure that impact from increased pumping does not adversely affect the treatment of the contaminant plume or result in the spread of the contamination. The EPA will continue to work with the local public water utility in advising them of conditions and the potential risks based upon the information available.

4. The EPA will continue to operate the Wilko SVE system towards clean-up goals.

5. The study to determine the infiltration rates in the various Midland SVE wells has been ordered. Once it is completed, a specific plan to optimally remove oil from those wells will be implemented. In addition, an extraction system will be designed for and installed in MW412 to remove oil directly from the ground water surface. The system will be designed to limit the amount of ground water removed when the oil is removed. Additional work will also be performed to determine the plume's extent.

6. Operation of the Midland and Wilko SVE systems will continue until they are no longer effective or they have completed their intended objective. The EPA will continually monitor the SVE systems to ensure optimum operation.

7. The EPA acknowledges that PCE appears to be moving through the treatment system and appears immediately down gradient of the system; however, it is not being detected at any significant level beyond that, leading to the conclusion that residual effects of the treatment system may be acting on the plume as it moves down gradient. However, it has been determined that additional maintenance work is required for the 53rd Street in-well stripper systems. This work is underway and should return the system's operations to optimum efficiencies.

Protectiveness Statement(s):

All immediate threats at the site have been addressed, and the remedy is protective of human health and the environment. Public water is available to the entire area. Residences where contamination was present in ground water have been connected to public water. The ground water is currently being treated. Soil contamination is also being treated to prevent future contamination of the ground water.

Long-term Protectiveness:

The long-term protectiveness of the Remedial Action is based upon two factors. First, public water is now available, ground water from the contaminated plume is no longer the only source of drinking water, and no one is currently without a source of uncontaminated water. Second, the contaminated plume is being contained and treated, therefore, should not migrate beyond its current boundaries prior to being remediated. All remedial action objectives (RAOs) have been, are being, or will be achieved and the long-term protectiveness of the site is assured. However, the long-term protectiveness of the remedy has been questioned since some contamination above the MCL has passed by the treatment system on 53rd Street and may be pulled toward the Bel Aire well field due to increased usage of the well field rather than continue on the plume's previous path towards the Riverview neighborhood and the second set of treatment wells. Future monitoring will be required to determine if the modifications to the treatment system have resulted in the system functioning as designed.

Long-term protectiveness is dependent on: the continued effective operation of the various treatment systems on site; the removal of the free-phase oil from the Midland property, to eliminate it as a potential source of contamination; and public water supply pumping in the future does not result in moving the plume away from the existing treatment systems.

Other Comments:

Continued monitoring of the SVE systems and in-well strippers will be required to ensure that the system is operating optimally. Evaluations of whether to remove in-well strippers from operation upon achieving ground water clean-up goals as well as O&M of both the in-well strippers and SVE systems will be ongoing. Continuous monitoring and modification of the in-well strippers to provide full-time operation and treatment of the contaminant plume will continue throughout the operation of the system.

57th & N. Broadway Superfund Site
Wichita-Park City, Kansas
Five-Year Review Report

I. Introduction

The purpose of the five-year review is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in five-year review reports. In addition, five-year review reports identify issues found during the review, if any, and identify recommendations to address them.

The Agency is preparing this five-year review report pursuant to the Comprehensive Environmental Response, Compensation, And Liability Act (CERCLA) §121 and the National Contingency Plan (NCP). CERCLA §121 states:

> *If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgement of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.*

The Agency interpreted this requirement further in the NCP; 40 CFR §300.430(f)(4)(ii) states:

> *If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.*

The United States Environmental Protection Agency (EPA), Region 7, conducted the five-year review of the remedy implemented at the 57th & N. Broadway site, Wichita-Park City, Kansas. This review was conducted by the Remedial Project Manager (RPM) for the site from October 2002 through September 2004. This report documents the results of the review.

This is the first five-year review of the 57th & N. Broadway site. The triggering action for this statutory review is the date of the start of on-site construction at the site. That action was the connection to the public water supply of selected residences in the Riverview neighborhood in June of 1998.

II. Site Chronology

Table 1 - Chronology of Site Events

Event	Date
Various parties, poor housekeeping, and spills of chlorinated solvents	1950s-1984
KDHE orders Midland to investigate ground water contamination	1985
KDHE completes site investigation	1989
EPA supplies bottled water through removal action	1990-1992
Site proposed for National Priorities List (NPL)	02/07/1992
Final Listing on NPL	11/14/1992
Removal for bottled water and whole-house filters	1998-1999
Remedial Investigation/Feasibility Study Completed (OU 2)	06/05/1998
Record of Decision OU 2	06/05/1998
Remedial Action for connection to public water supply begins (OU 2) with start of on-site construction of the Remedial Action - trigger for five-year review.	06/29/1998
Remedial Investigation/Feasibility Study Completed (OU 1)	09/29/1999
Record of Decision OU 1	09/29/1999
Remedial Design OU 2 Complete	08/11/2000
Remedial Action OU 1 Commences	09/28/2000
Remedial Design OU 1 Complete	09/24/2001
Remedial Action Physical Construction Completed	08/29/2002
Close-Out Report Signed (Construction Completion Achieved)	09/10/2002

III. Background

Physical Characteristics

The 57th & N. Broadway site (KSD981710247) is located in and near the northern portion of the city of Wichita, Kansas. The actual location of the site lies on a diagonal that runs from the extension of West 58th Street north and Broadway Avenue to the southwest to approximately

West 46th Street north and Armstrong Drive (see Appendix D). A split contaminated ground water plume extends beneath this residential, commercial, and industrial area. Prior to any EPA activity, nearly all domestic water in the site was obtained from private wells in the area of the contaminated aquifer. Currently, ground water above Maximum Contaminant Levels (MCLs) is not being used for domestic consumption. However, contaminated wells may be used for non-consumptive purposes and water from the aquifer which does not exceed MCLs is being used for private residential consumption. To the south of the site is the Little Arkansas River.

The source of the ground water contamination is from several facilities located near the intersection of 57th and N. Broadway Streets. Ground water exceeding drinking water standards for Volatile Organic Compounds (VOCs) including 1,1-dichloroethene (1,1-DCE), trichloroethene (TCE), Tetrachloroethene (PCE), and vinyl chloride were found at the site. Two areas of contaminated soil are being remediated: one is located on the former Wilko Paint property, and the second is at the Midland Refinery property. In addition, free-phase oil has been found in the subsurface at the Midland Refinery. Efforts are underway to remove and remediate that oil.

Land and Resource Use

The land overlaying the contaminated ground water plume has a variety of uses ranging from industrial and commercial to residential. In addition to a significant number of single family residences, the land use includes a used oil re-refinery, trucking firms, municipal waste water treatment plant, an insurance 'impound lot', school bus facility, and a variety of other small businesses and agricultural uses.

History of Contamination

The 57th & N. Broadway site was first identified in 1983 as a result of local residents' concern about the quality of drinking water in the Wichita Heights area, located on the northern edge of the city of Wichita, Kansas. Investigations conducted in response to these concerns identified VOCs above the MCLs in the area ground water. Subsequent investigations identified contaminants in the soils, ground water, and surface water on, beneath, and adjacent to the site.

Several ground water sampling efforts conducted in the area between 1984 and 1994 determined that a number of private drinking water supply wells were contaminated. In addition, other drinking water supply wells located down gradient of the contaminated area were potentially threatened.

The site was placed on the National Priorities List (NPL) on November 14, 1992. From August 1990 to May 1992, the EPA performed a removal action at the site which supplied residents and businesses with bottled water until the installation of an alternate water supply line could be completed. The alternative water supply was made available to businesses and residences by the Park City Water District in 1992. Park City is located at the northern edge of Wichita, Kansas.

In February 1996, a *Technical Memorandum on Site Characterization* was completed which compiled the available data from previous investigations at the site. The memorandum recommended that additional sampling be performed to adequately determine the nature and extent of the contamination at the site.

A remedial investigation (RI) for operable unit 1 (OU 1) was completed in August 1998. The field work for the RI was completed in two separate efforts: the Site Reconnaissance in March 1997, and the Field Investigation in June through August 1997. The RI included collection and analysis of ground water, surface water, soil, and sediment samples; completion of a baseline risk assessment; and fate and transport modeling of the contaminants in the ground water.

As a result of the RI field work which was completed in August of 1997, concerns were raised regarding the quality of ground water in the Riverview area of the site. A Riverview OU 2 was created for this area located in the southwest portion of the site. The Riverview OU is approximately bounded on the north by West 50th Street north, on the east by Arkansas Avenue, on the south by West 46th Street north, and on the west by Armstrong Drive. The concerns were based on elevated levels of VOCs detected in an area monitoring well during the RI and Kansas Department of Health and Environment (KDHE) sample results from an area residential well. At the time of sampling, most residents in this area obtained their potable water supply from individual residential wells screened in the alluvial aquifer. Ground water samples were collected from area residential wells and analyzed for the presence of five VOCs which were detected in the area during the RI. These five VOCs included vinyl chloride, TCE, 1,1-dichloroethane (1,1-DCA), 1,1-DCE, and cis-1, 2-dichloroethene (cis-1, 2-DCE). The results of the residential well sampling indicated the presence of vinyl chloride, 1,1-DCE, and TCE in the ground water above MCLs.

Initial Response

The initial response at the site was the provision of bottled water to the residents and businesses in the northern plume area from 1990 until 1992. The supplying of bottled water was discontinued when a public water supply from the Park City Water District became available in the area. Bottled water and whole house filtration was provided in the Riverview area prior to initiation of the remedial action for the area.

Basis for Taking Action

The basis for taking action at this site under CERCLA authorities was the primary aquifer in the area being contaminated with chlorinated organic chemicals, primarily solvents and their degradation products. A number of residents were using ground water as their sole domestic supply that was contaminated at levels considered unsafe for long-term consumption. In addition, soil contamination was discovered which had the potential to further contaminate the ground water. Remediation of this soil was determined to be necessary.

IV. Remedial Actions

Remedy Selection

The remedy for the site was selected in two Records of Decision (RODs). The first ROD was for OU 2 in the Riverview area and was completed on June 5, 1998. The second ROD, for OU 1, was completed on September 29, 1999. The first ROD identified the remedy as connecting residents to a public water supply and installation of in-well strippers for remediation of the VOC ground water contamination plume in the Riverview area. The EPA, via a cooperative agreement with the city of Wichita, connected the Riverview area residents to the public water supply in 1998 and implemented the remedial design by installing the in-well strippers in 2001.

The ROD for OU 1, which addressed the remaining site contamination including both ground water and soil contamination, identified the remedy for OU 1 as installation of in-well strippers for remediation of the ground water contamination and installation of a SVE system for remediation of the contaminated soil at the former Wilko Paints property. In addition, further soil investigations of the Midland Refinery property to determine the need for additional soil treatment resulted in an additional SVE system being installed at Midland. Both the Wilko and the Midland systems are now operating. During construction of the SVE system at Midland, an 'oily product' was encountered in one of the treatment wells. Since the systems have been in operation, oil has been found in four of the extraction wells and a monitoring well. Estimates of the amount of oil present are speculative at best until permanent systems are installed for oil removal on a continual basis. Once we have the additional data, it may be possible to predict the length of time to remove the oil from the subsurface. Chemical analysis of the material reveals that it is a used oil containing aromatic and chlorinated solvents. It is anticipated that the soil treatment will be completed within six to ten months of the time the oil removal is completed. The in-well strippers for treatment of the ground water contamination for OU 1 were installed at the same time as those for OU 2 and are functioning as expected. All remedial action construction activities for the 57th & N. Broadway site are currently completed, and the treatment systems are in operation.

Remedy Implementation

This is a fund-lead site. Once the execution of the site-specific State Superfund Contract (SSC) for OU 2 was complete, the action was initiated. A second SSC was completed for OU 1 prior to the installation of the ground water and soil treatment systems. Remedial action began in June of 1998 with the connection of residences with contaminated wells to the city of Wichita's public water supply. Two subsequent actions resulted in the installation of 31 in-situ treatment wells. Six were installed in the Riverview neighborhood, OU 2, and 25 were installed along 53rd Street, in OU 1. The final construction action was the installation of two SVE systems: one at the former Wilko Paint facility, and the second at the Midland Refinery facility. The installation of these systems was completed in August of 2002.

System Operation/Operation and Maintenance

Operation and maintenance (O&M) of the ground water treatment system has consisted primarily of checking the system and doing routine maintenance of equipment. Quarterly monitoring of the system's effectiveness has also been done. One concern with the treatment system is the unexpected high temperature shut down of the system's compressors. This was initially addressed by improving the air flow through the system housing units and discovering a previously unrecognized maintenance requirement. Each system requires the replacement of carbon blades (vanes) in the compressor unit every three to five thousand hours of operation. This was not included in the original O&M instructions. The breakdown of these blades was thought to be partly responsible for the high temperature shutdowns. The maintenance of the carbon vanes has been addressed in the revised O&M manual, and required maintenance has been performed and will be continued as necessary. The system continued to experience a problem with high temperature shutdowns. An apparent design flaw which did not provide sufficient air flow directly to the compressor motor has now been recognized and addressed. See Section VIII (Issues) for more detail. At present, 4 of the 31 systems have experienced failure of the blowers. These will be replaced if necessary. The EPA is currently evaluating the need to keep all systems operational due to the reduction of contamination in portions of the plume. No additional problems have been encountered. The O&M of the SVE systems has also been routine. Some of the SVE wells in the Midland SVE system have accumulated oil. The oil is being periodically bailed and disposed. Bailing of the oil from the SVE system wells is not an optimum activity. A procedure to optimize the removal of the oil, thus improving the overall efficiency of the system, is being developed and will be implemented as soon as possible. Otherwise, the system is operating as expected. Additional oil removal via MW412 will also be initiated. We are currently evaluating the need for installing more oil extraction wells.

V. Progress Since Last Five-Year Review

This is the first five-year review. Construction completion was achieved in September of 2002, so the entire remedial action has only been functioning for a short time.

VI. Five-Year Review Process

Administrative Component

The five-year review was initiated with a file review and site visit in October of 2002 and completed with the signing of the five-year review report in September 2004.

Community Involvement

On October 10, 2002, the initiation of the five-year review was announced at a Community Advisory Group meeting in Park City, Kansas. On April 10, 2003, a draft of this five-year review report was made available to the Community Advisory Group. Soon after approval of

this five-year review report, a notice will be placed in the local newspaper announcing that the report is complete and that it is available to the public at the Park City Library and the EPA Region VII office.

Document Review

Documents reviewed for this five-year review included the ROD for OU 1, the ROD for OU 2, the Interim Remedial Action Report for OU 2, and the monitoring data that have been generated since the initiation of the construction activities.

Data Review

A summary of the data taken during the quarterly ground water monitoring is included in Appendix A. The data include the available data from the quarterly ground water monitoring. Data from the quarterly monitoring of the in-well stripping system is found in Appendix B. Appendix C contains the data from the two SVE systems: one at the former Wilko Paints facility, and the second at the Midland Refinery facility.

Site Inspection

Site inspections were carried out on October 10, 2002, January 9, 2003, and April 10, 2003. The RPM for the site, Mr. Steven Kinser, visited the site to get a general overview of the activities on and around the site. These site visits indicated that the remedy was operating as designed.

Interviews

Subsequent to the site inspection, the RPM interviewed David Robbins of the Park City, City Council, and chairman of the Community Advisory Group. Mr. Robbins indicated that generally the public agreed that the site activities were progressing as anticipated. Mr. Robbins also stated that, in his opinion, since site contaminants were being addressed, the site would continue to be of minimal additional concern to the general public.

VII. Technical Assessment

Question A: Is the remedy functioning as intended by the decision documents?

All components of the remedy: the residential connections to the public water supply, the in-well strippers in Riverview and along 53rd Street north, and the two SVE systems - one at the former Wilko Paint facility and the second at the Midland Refinery facility - are in and functioning. Operational adjustments have been made to the in-well stripper systems and will continue to be monitored. The systems are now apparently functioning as designed, with the exception of the six Riverview systems which are still experiencing cycling. All monitoring wells in the Riverview area are currently below MCLs for all parameters.

Question B: Are the exposure assumptions, toxicity data, clean-up levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

There have been no changes in the physical conditions at the site that would affect the protectiveness of the remedy. Nor have there been any changes in the relative standards, exposure pathways, toxicity, or other contaminant characteristics that would change the decisions previously made. At this time and in the immediate future, it is not anticipated that water from the contaminant plume will be used in the public water supply. Contaminant levels in the Riverview plume continue to decline. No contaminants above the MCLs were found in the October monitoring well sampling. Therefore, the exposure assumptions, toxicity data, clean-up levels, and RAOs used at the time of the remedy selection are still valid.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There has not been any information that has come to light that would call into question the overall protectiveness of the remedy. In fact, the conditions at the site are improving which may allow steps to be taken to reduce the amount of treatment required at the site. Continued monitoring of the recently appearing PCE in the ground water near the western end of the treatment system on 53rd Street will still be necessary.

Additional concerns would be present in the event the in-well treatment systems ceased to operate effectively. Removal of the free-phase oil from the Midland property is necessary to eliminate the oil as a potential source of ground water contamination, resulting in long-term problems. If the oil is not removed and results in continued contamination of the ground water, that contamination will persist for many years beyond the original estimate for site clean up; and finally, long-term protectiveness may be impacted by the local public water supply's pumping of cross gradient wells to a great enough extent to move the contaminated plume away from the influence of the existing treatment systems. Monitoring will continue to detect any such shift.

Technical Assessment Summary

All remedial actions have been taken and are operating under the parameters of the remedial design. Various design modifications have been and are being made to optimize the design for improved functioning and efficiency and to address the high temperature shut down problem. As conditions permit, based upon monitoring results, individual systems may be shut off, either temporarily or permanently, as clean-up goals are met. The systems are currently protective of human health and the environment and are expected to remain so in the future until remediation is complete.

VIII. Issues

1. All systems at the site are constructed and functioning. Not all systems are operating as expected, however, problems and ongoing maintenance issues are being resolved as they appear. There are problems with high temperature shut downs on the in-well strippers, however, the cause of that problem has been diagnosed and a remedy designed and installed. This remedy appears to be working and significantly reducing the 'down time' due to high ambient temperatures. The O&M Manual is being followed closely. The system modifications have essentially compensated for the apparent design flaw which resulted in the overheating problem. The O&M manual will be updated to reflect this modification. Maintenance has been performed and all systems are now within design specifications or are currently being brought up to them, with the exception of four in-well strippers in the northern plume that require blower replacement. The four northern in-well strippers are located in areas where the ground water is currently meeting drinking water standards. All Riverview in-well strippers are functioning. The ground water contaminants will continue to be monitored to determine the need for modifications to the treatment system.

2. PCE has been detected in the western edge of the northern plume. PCE contamination was found in monitoring wells and the treatment wells in the western edge of the plume along 53rd Street at levels considerably higher than have been encountered in these or any other wells for a period of several years. PCE was detected in the past in the oil contamination at Midland, but has not recently been detected in the closest monitor wells down gradient of Midland. No levels of PCE have been found in any of the monitoring wells in the northern reaches of the plume which would indicate a source. Subsequent sampling reveals decreasing levels of PCE contamination. In the last monitoring effort, all monitoring wells in the Riverview plume were below MCLs.

3. There continues to be concern by some that increased usage of a cross gradient well field, the Bel Aire well field, will draw contamination from the plume to the well field. This well field is currently supplying drinking water to the residents in the contaminated area. The ground water modeling conducted as part of the RI shows that the maximum pumping rate that would not draw contaminants into the Bel Aire wells was 1.3 million gallons per month. The pumping rate on the Bel Aire well field has recently been increased to five to six times that quantity. It is unknown what the effect of this increased pumping will have on the contaminant plume. However, it is expected that the existing sentry wells will detect contaminants before they reach the PWS wells, and EPA anticipates that the treatment system installed at the water plant by the water district will be able to address these contaminants. The same utility has installed a supply well a few hundred feet down gradient from the down gradient monitoring well, MW EPA 1, thus directly in the path of the plume. Initial analytical reports on water from this well show no problems. The EPA is providing the utility information about the ground water contamination so the utility is informed when developing their plans. At this time and in

the immediate future, it is not anticipated that water from the contaminant plume will be used in the public water supply. Contaminant levels in the Riverview plume continue to decline. No contaminants above the MCLs were found in the October monitoring well sampling.

4. The SVE system at Wilko is functioning as expected, and no significant problems have been encountered.

5. We have experienced the accumulation of VOC-contaminated oil in some of the wells at the Midland Refinery SVE system. The oil is bailed out and properly disposed on a regular basis. Periodic bailing of the oil from the SVE system wells is not an optimum activity. The wells are to be studied and a plan is to be developed to accomplish the oil removal, thus improving the overall efficiency of the system. Oil will not be allowed to accumulate in the wells as it now does, and therefore, the SVE system will operate more efficiently. In addition, greater quantities of oil will be removed from the wells.

6. Ongoing adjustments of the SVE system's operation is necessary to assure the optimum conditions are being maintained. This issue will continue throughout the life of the project. Continued consultation with the state and contractors to arrive at those optimum conditions will be an ongoing activity for this system.

7. The KDHE has been concerned about the effectiveness of the ground water treatment system as it does not appear to be completely reducing contaminants in the water moving through that system.

IX. Recommendations and Follow-Up Actions

1. High temperature shutdowns. The system modifications appear to have resolved the issues of system shut down as the result of ineffective cooling of the blower motors. There will still be periods when the ambient temperatures exceed 105 degrees, resulting in the systems shutting down. Once ambient temperatures drop below about 100 degrees, the system will self restart automatically. This will result in the constant or near constant operation of the systems in all but the hottest periods of the year. Even during those hot periods, the systems are expected to operate two thirds to three fourths of the time or more. This will result in essentially continuous treatment of the ground water. The contaminant plume is moving at a rate of about one foot per day, thus a six- or eight-hour shut down for a radius of influence of approximately 50 feet will not result in significant reductions of treatment.

   A second temperature-related problem exists in the Riverview portion of the plume. The six wells in the Riverview portion of the plume have single-phase electric motors in the blowers while those in the northern portion of the plume use three-phase motors; three-phase electrical service is not available in the Riverview neighborhood. It is thought that

this difference in system design is the reason the systems in Riverview 'cycle' on and off. The systems will run for a few minutes then cycle off for a minute or two. It is thought that the motors in the blowers are just barely large enough to do the job demanded of them and thus their cores heat up due to the higher amperage required by the single-phase motor. The motors then exceed the safety heat cutoff and the internal cutoff switch is tripped. Once power is removed from the motor, it cools down rapidly and the motor restarts in a minute or two. Given the rate of ground water movement and the duration of the shut downs, it appears that there is no significant impact on the treatment results from the 'cycling'. All monitoring wells in the Riverview neighborhood were below MCLs during the October sampling. We will continue to closely monitor all systems and evaluate monitoring and maintenance reports.

2. There is no clear explanation for the presence of the PCE in the northern plume that can be based on available information. Although it is not certain where the PCE contamination originates, the in-situ treatment wells are placed in a position that will treat the contamination. The O&M activities are underway and will be continuously monitored to ensure that the in-situ wells operate optimally. This corrects a deficiency that allowed the efficiency of the in-well system to be seriously compromised. Fouling of the wells has significantly impacted their ability to treat the contaminated ground water. The wells are being cleaned and repaired. Procedures have been put in place to prevent future lapses.

3. Continued monitoring of the plume is necessary to insure that impact from increased pumping does not adversely affect the treatment of the contaminant plume or result in the spread of the contamination. We will continue to work with the local public water utility in advising them of conditions and the potential risks based upon the information that we have.

4. The EPA will continue to operate the Wilko SVE system towards clean up. As we operate and collect data, stop the system and restart to check for rebound, we are moving towards remediation goals for this soil clean up.

5. The study to determine the infiltration rates in the various Midland SVE wells has been ordered. Once it is completed, a specific plan to optimally remove oil from those wells will be devised and executed. In addition, an extraction system will be designed for and installed in MW412 to remove oil directly from the ground water surface. The system will be designed to limit the amount of ground water removed when the oil is removed. The EPA will also be doing additional work to determine the plume's extent.

6. Operation of the Midland and Wilko SVE systems will continue until they are no longer effective or they have completed their intended objective. The EPA will continually monitor the SVE systems to ensure optimum operation. More care will be taken to ensure that excessive vacuums are not maintained and that system optimization is

continually reviewed and based upon system data. The Wilko system has been shut down and subsequently restarted to determine if any 'rebound' of contaminant is occurring. This cycling may be repeated if it is determined to be beneficial in the removal of subsurface contaminants. The same practice may be applicable to the portion of the Midland system not impacted by oil, and eventually to the entire system.

6. The EPA acknowledges that PCE appears to be moving through the treatment system and appears immediately down gradient of the system; however, it is not being detected at any significant level beyond that, leading to the conclusion that residual effects of the treatment system may be acting on the plume as it moves down gradient. However, it has been determined that additional maintenance work is required for the 53rd Street in-well stripper systems. This work is underway and should return the systems operations to optimum efficiencies. Additional O&M activities may be required to maintain peak efficiency. Once these actions are identified, they will be implemented and the O&M manual adjusted to ensure future actions. Additional care will be taken to insure that all monitoring and maintenance activities are carefully followed.

X. Protectiveness Statement

The remedy is protective of human health and the environment. Therefore: "Because the remedial actions at all Operable Units are protective, the site is protective of human health and the environment."

XI. Next Review

The next review is to be scheduled five years from the date of this report.

APPENDIX A

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL=5	Vinyl Chloride MCL = 2	PCE MCL =5
EPA 1	RI Data	-	-	-	-	-	-	-	
	12-99	18.0	ND	3.3	17.0	0.90	0.86	1.8	
	4-00	14.0	ND	2.5	11.0	ND	ND	ND	
	07-00 Ks.dup	18.0	ND	3.0	14.1	0.90	1.O	1.8	
	7-00	20.0	ND	4.0	17.0	ND	ND	1.5	
	10-00	24.0	ND	5.0	28(j) estimated	ND	1.0	ND	
	01-01	16.0	ND	3.0	12.0	ND	ND	1.0	ND
	04-01	25.0	ND	5.0	22.0	1.0	2.0	5.0	ND
	08-01	31.0	0.71	5.8	24	1.6	2.1	6.8	ND
	10-01	27.0	ND	7.5	27(J)	2.1	2.2	7.8	ND
	01-02	28.0	ND	5.4	22.0	1.8	2.5	5.7	ND
	06-02	ND	ND	11.0	ND	3.3	4.6	11	ND
	08-02	25.0	0.66j	6.4j	19.0	2.1	ND (2.9)	5.8	ND
	10-02	18.0	ND	3.9	13	1.4	2.0	4.4	ND
	1-03	24.0	0.5	6.0	18	2.0	3.0	8.0	ND
	3-03	24.0	0.51	6.5	18	2.2	3.9	4.3	ND

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL=5	Vinyl Chloride MCL = 2	PCE MCL =5
	8-03	18.0	ND	5.4	13	1.7	3.1	3.7	ND
EPA 2	RI Data	-	-	-	-	-	-	-	
	12-99	4.7	ND	ND	2.0	ND	ND	ND	
	4-00	6.1	ND	1.4	3.1	ND	ND	ND	
	07-00 Ks.dup	6.5	ND	1.2	3.2	0.6	0.9	1.5	
	7-00	7.0	ND	1.5	3.4	ND	ND	1.4	
	10-00	6.0	ND	2.0	2.0	ND	ND	ND	
	01-01	4.0	ND	1.0	2.0	ND	ND	ND	ND
	04-01	3.0	ND	ND	1.0	ND	ND	ND	ND
	08-01	3.9	ND	0.93	1.70	ND	0.72	ND	ND
	10-01	3.5	ND	ND	1.7	ND	0.76	ND	ND
	01-02	2.8	ND	ND	1.3	ND	0.89	ND	ND
	06-02	2.8	ND	ND	1.2	ND	0.97	ND	ND
	08-02	1.2	ND	ND	ND	ND	ND	ND	ND
	10-02	ND	ND	ND	ND	ND	ND	ND	ND
	1-03	0.07	ND	ND	ND	ND	0.6	ND	ND

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL=5	Vinyl Chloride MCL = 2	PCE MCL =5
	3-03	0.67	ND	ND	ND	ND	0.72	ND	ND
	8-03	ND	ND	ND	ND	ND	ND	ND	ND
EPA 3	RI Data	-	-	-	-	-	-	-	
	12-99	5.4	ND	ND	4.8	ND	ND	ND	
	4-00	6.3	ND	ND	6.2	ND	ND	ND	
	07-00 Ks.dup	5.3	ND	0.90	4.6	0.60	0.70	ND	
	7-00	5.3	ND	1.0	4.8	ND	ND	ND	
	10-00	6.0	ND	1	6.0	ND	ND	ND	
	01-01	6.0	ND	1.0	5.0	ND	ND	ND	ND
	04-01	8.0	ND	1.0	8.0	ND	1.0	ND	ND
	08-01	13.0	ND	0.21	11.0	0.53	1.5	0.68	ND
	10-01	14.0	ND	ND	11.0	ND	1.6	0.72	ND
	01-02	12.0	ND	1.6	10.0	ND	1.3	0.61	ND
	06-02	24.0	ND	3.2	18	ND	1.7	ND	ND
	08-02	13.0	ND	1.6	9	ND	1.2	0.51	ND
	10-02	12.0	ND	1.1	7.7	ND	1.1	ND	ND
	1-03	14.0	ND	2.0	9.0	ND	1.0	2.0	ND

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=7.0	1,1 DCE MCL=7	Cis 1,2 DCE MCL=70	1,1,1 TCA MCL=200	TCE MCL=5	Vinyl Chloride MCL=2	PCE MCL=5
	3-03	16.0	ND	ND	12.0	ND	1.8	1.1	ND
	8-03	11.0	ND	1.2	6.6	ND	ND	ND	ND
MW-118	08-01	11.0	ND	ND	7.3	ND	1.5	0.90	0.56
	10-01	13.0	ND	ND	9.2	0.52	1.9	ND	0.71
	01-02	5.5	ND	ND	3.9	ND	1.0	ND	0.53
	06-02	15	ND	ND	11.0	ND	1.5	0.68	0.59
	08-02	NS	NS	NS	NS	NS	NS	NS	NS
	10-02	6.4	ND	ND	2.8	ND	ND	ND	ND
	1-03	4.0	ND	ND	2.0	ND	0.5	ND	ND
	3-03	3.8	ND	ND	1.4	ND	0.54	ND	ND
	8-03	4.4	ND	ND	1.5	ND	ND	ND	ND

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL=5	Vinyl Chloride MCL = 2	PCE MCL =5
MW 120	RI Data	2.3	ND	1.0	5.1	0.87	1.2	ND	
	12-99	4.9	ND	3.3	15.01	2.5	5.1	ND	
	4-00	4.1	ND	3.4	12.0	2.4	4.5	ND	
	7-00	3.0	ND	1.5	5.8	ND	1.5	ND	
	10-00	6.0	ND	5.0	19.0	2.0	5.0	ND	
	01-01	8.0	ND	2.0	7.0	ND	2.0	ND	ND
	04-01	4.0	ND	1.0	5.0	ND	2.0	ND	ND
	08-04	NS	NS	NS	NS	NS	NS	NS	NS
	10-01	5.2	ND	ND	5.8	ND	2.5	ND	ND
	01-02	3.7	ND	ND	4.6	0.61	2.3	ND	ND
	06-02	7.2	ND	ND	7.2	0.75	2.4	ND	ND
	08-02	4.2	ND	1.0	4.1	0.61	2.1	ND	ND
	10-02	4.4	ND	ND	2.9	ND	1.7	ND	ND
	1-03	7.0	ND	1.0	5.0	ND	2.0	0.8	ND
	3-03	5.3	ND	ND	3.7	ND	2.7	ND	ND
	8-03	5.6	ND	ND	3.1	ND	1.5	ND	ND

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL=5	Vinyl Chloride MCL = 2	PCE MCL =5
MW 303	RI Data	7.4	ND	ND	0.74	ND	ND	ND	
	12-99	-	-	-	-	-	-	-	
	4-00	6.0	ND	ND	2.0	ND	ND	ND	
	7-00	-	-	-	-	-	-	-	
	10-00	7.0	ND	ND	2.0	ND	ND	ND	
	01-01	-	-	-	-	-	-	-	
	04-01	-	-	-	-	-	-	-	
	08-01	-	-	-	-	-	-	-	
	10-01	-	-	-	-	-	-	-	-
	01-02	NS	NS	NS	NS	NS	NS	NS	NS
	06-02	NS	NS	NS	NS	NS	NS	NS	NS
	08-02	NS	NS	NS	NS	NS	NS	NS	NS
	10-02	1.1	ND	ND	ND	ND	ND	ND	ND
	1-03	6.0	ND	ND	0.9	ND	ND	2.0	ND
	3-03	7.6	ND	ND	1.6	ND	ND	1.6	ND
	8-03	4.9	ND	ND	ND	ND	ND	ND	ND

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL=5	Vinyl Chloride MCL = 2	PCE MCL =5
MW 304	RI Data	6.8	ND	ND	0.86	ND	ND	ND	
	12-99	-	-	-	-	-	-	-	
	4-00	6.2	ND	ND	ND	ND	ND	ND	
	7-00	-	-	-	-	-	-	-	
	10-00	11.0	ND	ND	ND	ND	ND	ND	
	01-01	-	-	-	-	-	-	-	-
	04-01	-	-	-	-	-	-	-	-
	08-01	-	-	-	-	-	-	-	-
	10-01	6.3	ND	ND	ND	ND	ND	ND	ND
	01-02	NS	NS	NS	NS	NS	NS	NS	NS
	06-02	NS	NS	NS	NS	NS	NS	NS	NS
	08-02	7.1	ND(2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)	ND (2.1)
	10-02	4.1	ND	ND	ND	ND	ND	ND	ND
	1-03	5.0	ND	ND	0.5	ND	ND	1.0	ND
	3-03	2.8	ND	ND	ND	ND	ND	ND	ND
	8-03	3.3	ND	ND	ND	ND	ND	ND	ND

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL=5	Vinyl Chloride MCL = 2	PCE MCL =5
MW 305	RI Data	ND	ND	ND	ND	ND	ND	ND	ND
	12-99	-	-	-	-	-	-	-	
	4-00	ND	ND	ND	ND	ND	ND	ND	
	7-00	-	-	-	-	-	-	-	
	10-00	ND	ND	ND	ND	ND	ND	ND	
	01-01	-	-	-	-	-	-	-	-
	04-01	-	-	-	-	-	-	-	-
	08-01	-	-	-	-	-	-	-	-
	10-01	-	-	-	-	-	-	-	-
	01-02	NS	NS	NS	NS	NS	NS	NS	NS
	06-02	NS	NS	NS	NS	NS	NS	NS	NS
	08-02	NS	NS	NS	NS	NS	NS	NS	NS
	10-02	ND	ND	ND	ND	ND	ND	ND	ND
	1-03	ND	ND	ND	ND	ND	ND	ND	ND
	3-03	ND	ND	ND	ND	ND	ND	ND	ND

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL=5	Vinyl Chloride MCL = 2	PCE MCL =5
MW 306	RI Data	1.3	ND	ND	2.5	ND	0.81	ND	
	12-99	1.5	ND	ND	ND	ND	0.64	ND	
	4-00	1.3	ND	ND	ND	ND	1.6	ND	
	7-00	ND	ND	ND	1.0	ND	2.0	ND	
	10-00	ND	ND	ND	2.0	ND	5.0	ND	
	01-01	ND	ND	ND	ND	ND	2.0	ND	4.0
	04-01	ND	ND	ND	ND	ND	1.0	ND	2.0
	08-01	ND	ND	ND	1.1	ND	3.1	ND	7.2
	10-01	ND	ND	ND	1.5	ND	3.9	ND	9.8
	01-02	ND	ND	ND	1.8	ND	5.2	ND	22.0
	06-02	ND	ND	ND	ND	ND	ND	ND	ND
	08-02	ND(1.3)	ND(1.3)	ND (1.3)	1.8	ND (1.3)	5.4	ND (1.3)	36.0
	10-02	ND	ND	ND	1.2	ND	4.7	ND	25.0
	1-03	ND	ND	ND	1.0	ND	1.0	ND	1.0
	3-03	ND	ND	ND	1.6	ND	6.8	ND	23.0
	8-03	ND	ND	ND	1.4	ND	6.4	ND	40.0

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL=5	Vinyl Chloride MCL = 2	PCE MCL =5
MW 307	RI Data	ND	ND	ND	ND	ND	ND	ND	
	12-99	ND	ND	ND	ND	ND	ND	ND	
	4-00	ND	ND	ND	ND	ND	ND	ND	
	7-00	ND	ND	ND	ND	ND	ND	ND	
	10-00	ND	ND	ND	ND	ND	ND	ND	
	01-01	ND	ND	ND	ND	ND	ND	ND	ND
	04-01	ND	ND	ND	ND	ND	ND	ND	ND
	08-01	ND	ND	ND	ND	ND	ND	ND	ND
	10-01	ND	ND	ND	ND	ND	ND	ND	ND
	01-02	ND	ND	ND	ND	ND	ND	ND	ND
	06-02	ND	ND	ND	ND	ND	ND	ND	ND
	08-02	0.64	ND	ND	ND	ND	ND	ND	ND
	10-02	ND	ND	ND	ND	ND	ND	ND	ND
	1-03	3.0	ND	ND	1.0	ND	ND	ND	ND
	3-03	0.97	ND	ND	ND	ND	ND	ND	ND
	8-03	ND	ND	ND	ND	ND	ND	ND	ND

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL=5	Vinyl Chloride MCL = 2	PCE MCL =5
MW 308	RI Data	1.3	ND	ND	2.3	ND	1.0	ND	
	12-99	3.1	ND	2.5	10.0	ND	9.7	ND	
	4-00	3.9	ND	3.3	12.0	5.8	13.0	ND	
	7-00	3.0	ND	2.6	10.0	2.6	8.4	1.7	
	10-00	5.0	ND	4.0	15.0	3.0	14.0	3.0	
	01-01	4.0	ND	ND	12.0	5.0	13.0	1.0	3.0
	04-01	4.0	ND	3.0	12.0	5.0	12.0	ND	3.0
	08-01	4.3	ND	3.0	12.0	4.5	13.0	1.0	3.5
	10-01	3.8	ND	2.3	10.0	3.7	11.0	1.1	2.8
	THIS WELL WILL NOT BE SAMPLED SINCE IT IS IN THE MIDDLE OF THE TREATMENT SYSTEM								
	06-02	6.4	ND	ND	2.7	ND	ND	ND	ND
	08-02	NO SAMPLE FROM THIS WELL IN MIDDLE OF TREATMENT SYSTEM							
	03-03	3.4	ND	1.8	6.6	1.4	8.6	2.3 J	1.8
	8-03	3.0	ND	1.4 J	5.5	1.1	6.6	2.1 J	1.6

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL=5	Vinyl Chloride MCL = 2	PCE MCL =5
MW 309	RI Data	7.4	ND	ND	0.74	ND	ND	ND	
	12-99	-	-	-	-	-	-	-	
	4-00	ND	ND	ND	ND	ND	ND	ND	
	7-00	ND	ND	ND	ND	ND	ND	ND	
	10-00	ND	ND	ND	ND	ND	ND	ND	
	01-01	ND	ND	ND	ND	ND	ND	ND	ND
	04-01	-	-	-	-	-	-	-	-
	08-01	-	-	-	-	-	-	-	-
	10-01	0.74	ND	ND	ND	ND	ND	ND	ND
	01-02	NS	NS	NS	NS	NS	NS	NS	NS
	06-02	0.70	ND	ND	ND	ND	ND	ND	ND
	08-02	NS	NS	NS	NS	NS	NS	NS	NS
	10-02	ND	ND	ND	ND	ND	ND	ND	ND
	1-03	ND	ND	ND	ND	ND	ND	ND	ND
	3-03	ND	ND	ND	ND	ND	ND	ND	ND
	8-03	ND	ND	ND	ND	ND	ND	ND	ND

Well	Date	1,1 DCA ACTION LEVEL=810	1 2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL=5	Vinyl Chloride MCL = 2	PCE MCL =5
MW 311	RI Data	2.2	ND	4.9	15	3.4	2.8	8.7	
	12-99	8.6	ND	2.6	5.1	1.8	3.3	ND	
	4-00	6.1	ND	1.8	3.3	1.1	1.9	ND	
	7-00	4.3	ND	1.3	2.4	ND	2.2	ND	
	10-00	4.0	ND	1.0	2.0	ND	2.0	ND	
	01-01	3.0	ND	ND	1.0	ND	2.0	ND	ND
	04-01	4.0	ND	ND	2.0	ND	2.0	ND	ND
	08-01	3.5	ND	0.56	1.3	ND	1.6	ND	1.70
	10-01	3.2	ND	ND	1.2	ND	1.8	ND	2.0
	01-02	1.9	ND	ND	0.78	ND	1.6	ND	2.9
	06-02	1.7	ND	ND	0.93	ND	1.7	ND	5.8
	08-02	0.95	ND	ND	0.64	ND	2.0	ND	7.3
	10-02	ND	ND	ND	ND	ND	1.5	ND	5.7
	1-03	0.8	ND	ND	0.7	ND	2.0	ND	11.0 J
	3-03	0.91	ND	ND	0.82	ND	2.5	ND	11.0
	8-03	ND	ND	ND	ND	ND	2.2	ND	12.0

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL=5	Vinyl Chloride MCL = 2	PCE MCL =5
MW 312	RI Data	5.6	ND	3.2	13.0	2.9	3.2	ND	
	12-99	6.5	0.53	4.1	18.0	2.7	5.3	ND	
	4-00	6.7	ND	4.7	17.0	2.9	6.1	ND	
	7-00	6.8	ND	5.7	18.0	2.9	6.5	ND	
	10-00	11.0	ND	11.0	40.0	4.0	11.0	ND	
	01-01	6.0	ND	4.0	16.0	2.0	6.0	ND	ND
	04-01	8.0	ND	4.0	18.0	2.0	6.0	ND	ND
	08-01	12	0.67	4.2	19.0	2.0	6.1	0.71	0.69
	10-01	13.0	0.65	4.7	19.0	1.8	6.0	ND	0.73
	01-02	12.0	ND	2.9	16.0	1.1	4.4	0.54	0.55
	06-02	21.0	1.2	4.7	25.0	1.1	5.6	ND	0.64
	08-02	12.0	0.64	2.5	12.0	0.74	3.8	ND	ND
	10-02	9.6	ND	1.7	9.2	ND	2.8	ND	ND
	1-03	10.0	ND	2.0	11.0	0.7	4.0	ND	ND
	3-03	11.0	0.51	2.4	11.0	0.63	3.9	0.52J	ND
	8-03	7.8	ND	1.4	6.9	ND	2.2	ND	ND

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL=5	Vinyl Chloride MCL = 2	PCE MCL =5
MW 313	RI Data	ND	ND	ND	ND	ND	ND	ND	
	12-99	ND	ND	ND	ND	ND	ND	ND	
	4-00	ND	ND	ND	ND	ND	ND	ND	
	7-00	ND	ND	ND	ND	ND	ND	ND	
	10-00	ND	ND	ND	ND	ND	ND	ND	
	01-01	ND	ND	ND	ND	ND	ND	ND	ND
	04-01	ND	ND	ND	ND	ND	ND	ND	ND
	08-01	ND	ND	ND	ND	ND	ND	ND	ND
	10-01	ND	ND	ND	ND	ND	ND	ND	ND
	01-02	ND	ND	ND	ND	ND	ND	ND	ND
	06-02	ND	ND	ND	ND	ND	ND	ND	ND
	08-02	ND	ND	ND	ND	ND	ND	ND	ND
	10-02	ND	ND	ND	ND	ND	ND	ND	ND
	1-03	ND	ND	ND	ND	ND	ND	ND	ND
	3-03	ND	ND	ND	ND	ND	ND	ND	ND
	8-03	ND	ND	ND	ND	ND	ND	ND	ND

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL=5	Vinyl Chloride MCL = 2	PCE MCL =5
MW 315	RI Data	3.2	ND	2.2	12	2.8	5.0	ND	
	12-99	34.0	0.79	3.5	18.0	ND	3.9	4.4	
	4-00	14.0	ND	1.3	5.9	ND	1.1	2.1	
	7-00	7.6	ND	ND	3.6	ND	ND	1.3	
	10-00	16.0	ND	1.0	7.0	ND	1.0	2.0	
	01-01	6.0	ND	ND	3.0	ND	ND	1.0	ND
	04-01	14.0	ND	1.0	6.0	ND	1.0	2.0	ND
	08-01	11.0	0.50	0.58	3.6	ND	0.52	1.3	ND
	10-01	19.0	ND	ND	8.0	ND	1.7	2.2	ND
	01-02	15.0	ND	1.3	7.7	ND	1.6	1.1	ND
	06-02	8.3	0.56	ND	3.6	ND	ND	ND	ND
	08-02	4.0	ND	ND	1.9	ND	ND	ND	ND
	10-02	3.8	ND	ND	1.5	ND	ND	ND	ND
	1-03	4.0	ND	ND	2.0	ND	ND	ND	ND
	3-03	3.6	ND	ND	1.5	ND	ND	ND	ND
	8-03	4.3	ND	ND	1.5	ND	ND	ND	ND
MW 405	RI Data	-	-	-	-	-	-	-	

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL=5	Vinyl Chloride MCL = 2	PCE MCL =5
	12-99	ND	ND	ND	ND	ND	ND	ND	
	4-00	ND	ND	ND	ND	ND	ND	ND	
	7-00	-	-	-	-	-	-	-	
	10-00	ND	ND	ND	ND	ND	ND	ND	
	01-01	ND	ND	ND	ND	ND	ND	ND	ND
	04-01	ND	ND	ND	ND	ND	ND	ND	ND
	08-01	ND	ND	ND	ND	ND	ND	ND	ND
	10-01	ND	ND	ND	ND	ND	ND	ND	ND
	01-02	ND	ND	ND	ND	ND	ND	ND	ND
	06-02	ND	ND	ND	ND	ND	ND	ND	ND
	08-02	ND	ND	ND	ND	ND	ND	ND	ND
	10-02	ND	ND	ND	ND	ND	ND	ND	ND
	1-03	ND	ND	ND	ND	ND	ND	ND	ND
	3-03	ND	ND	ND	ND	ND	ND	ND	ND
	8-03	ND	ND	ND	ND	ND	ND	ND	ND
EAST MW-406	08-01	4.3	ND	ND	1.8	ND	ND	ND	ND
	10-01	7.2	ND	ND	3.8	ND	.54	0.82	ND

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL=5	Vinyl Chloride MCL = 2	PCE MCL =5
	01-02	4.0	ND	ND	2.4	ND	ND	ND	ND
	06-02	3.7	ND	ND	2.1	ND	ND	ND	ND
	08-02	2.5	ND	ND	1.4	ND	ND	ND	ND
	10-02	ND	ND	ND	ND	ND	ND	ND	ND
	1-03	1.0	ND	ND	ND	ND	ND	ND	ND
	3-03	1.2	ND	ND	0.67	ND	ND	ND	ND
	8-03	1.6	ND	ND	ND	ND	ND	ND	ND
CENT. MW-407	08-01	29.0	0.61	0.92	5.7	0.75	2.6	2.2	7.1
	10-01	26.0	0.68	ND	6.5	ND	3.1	2.4	6.7
	01-02	14.0	ND	ND	5.8	1.2	1.8	ND	2.9
	06-02	17.0	ND	ND	9.5	1.8	2.1	ND	1.4
	08-02	20.0	ND(0.7)	1.8	11.0	4.4	3.9	ND (0.7)	2.8
	10-02	43.0	ND	7.6	29.0	11.0	8.3	3.3	5.1
	1-03	37.0	0.8	4.0	16.0	5.0	8.0	5.0	8.0 J
	3-03	38.0	0.87	4.6	23.0	5.7	9.9	3.7J	7.8
	8-03	33.0 J	ND	1.8	11.0	ND	3.8	2.1 J	4.1

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL=5	Vinyl Chloride MCL = 2	PCE MCL =5
WEST MW-408	08-01	0.64	ND	ND	1.4	ND	2.3	ND	8.0
	10-01	0.54	ND	ND	1.4	ND	3.1	ND	9.5
	01-02	ND	ND	ND	1.7	ND	3.0	ND	20
	06-02	ND	ND	ND	1.1	ND	1.4	ND	8.7
	08-02	ND	ND	ND	0.62	ND	1.0	ND	8.6
	10-02	ND	ND	ND	ND	ND	ND	ND	6.2
	1-03	ND	ND	ND	1.0	ND	4.0	ND	50 J
	3-03	ND	ND	ND	1.3	ND	5.3	ND	54
	8-03	ND	ND	ND	ND	ND	3.2	ND	54
MW-409	10-02	ND	ND	ND	ND	ND	ND	ND	ND
	1-03	ND	ND	ND	ND	ND	ND	ND	ND
	3-03	ND	ND	ND	ND	ND	ND	ND	ND
	8-03	ND	ND	ND	ND	ND	ND	ND	ND
MW-410	10-02	ND	ND	ND	ND	ND	ND	ND	ND
	1-3	ND	ND	ND	ND	ND	ND	ND	ND

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL=5	Vinyl Chloride MCL = 2	PCE MCL =5
	3-03	ND	ND	ND	ND	ND	ND	ND	ND
	8-03	ND	ND	ND	ND	ND	ND	ND	ND
MW-411	10-02	2.1	ND	ND	ND	ND	ND	ND	1.6
	1-03	3.0	ND	ND	0.9	ND	ND	ND	2.0 J
	3-03	2.7	ND	ND	0.89	ND	ND	ND	1.2
	8-03	2.2	ND	ND	ND	ND	ND	ND	ND
Former Wilko Well (MW-310)	01-01	ND	ND	ND	2.0	ND	3.0	ND	ND
	04-01	ND	ND	ND	2.0	ND	2.0	ND	ND
	08-01	NS	NS	NS	NS	NS	NS	NS	NS
	10-01	0.91	ND	ND	2.6	0.67	3.4	ND	0.67
	01-02	NS	NS	NS	NS	NS	NS	NS	NS
	06-02	NS	NS	NS	NS	NS	NS	NS	NS
	08-02	NS	NS	NS	NS	NS	NS	NS	NS
	10-02	ND	ND	ND	1.0	ND	2.1	ND	ND
	1-03	0.5	ND	ND	1.0	ND	2.0	ND	ND
	3-03	ND	ND	ND	1.2	ND	2.7	ND	ND
	8-03	ND	ND	ND	ND	ND	2.0	ND	ND

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL=5	Vinyl Chloride MCL = 2	PCE MCL =5
TAP 4802 Kimberly	12-99	8.7	ND	2.6	12.0	1.4	2.2	ND	
	4-00	6.5	ND	2.0	8.4	ND	2.0	ND	
	7-00	7.3	ND	2.5	9.5	ND	1.8	ND	
	10-00	9.0	ND	4.0	17.0	1.0	3.0	ND	
	01-01	9.0	ND	3.0	11.0	2.0	3.0	ND	ND
	04-01	8.0	ND	2.0	10.0	ND	2.0	ND	ND
	08-01	10.0	ND	2.7	12.0	0.97	2.6	ND	ND
	10-01	11.0	0.52	3.0	13.0	1.0	2.7	ND	ND
	01-02	11.0	ND	2.4	13.0	0.72	2.7	ND	ND
	06-02	NS	NS	NS	NS	NS	NS	NS	NS
	08-02	12.0	ND	2.1	11.0	ND	2.1	0.54	ND
	10-02	12.0	ND	1.6	10.0	ND	2.0	ND	ND
	1-03	13.0	ND	2.0	10.0	ND	2.0	ND	ND
	3-03	18.0	0.59	2.9	15.0	ND	3.2	0.99	ND
	8-03	13.0	ND	1.5	8.0	ND	1.2	ND	ND

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL=5	Vinyl Chloride MCL = 2	PCE MCL =5
TAP 731 49TH	04-01	20.0	ND	5.0	13.0	2.0	4.0	3.0	ND
	08-01	25.0	ND	5.7	14.0	3.1	5.2	4.7	0.77
	10-01	23.0	ND	6.3	14.0	3.6	5.4	5.1	0.90
	01-02	NS	NS	NS	NS	NS	NS	NS	NS
TAP 749 47TH									
	12-99	4.1	ND	ND	ND	ND	ND	ND	
	4-00	No sample could be obtained from tap on this trip.							
	7-00	Owner informed that well no longer operational.							
KS-3	10-01	2.0	ND	ND	4.8	0.67	3.3	ND	0.71

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL=5	Vinyl Chloride MCL = 2	PCE MCL =5
	01-02	NS	NS	NS	NS	NS	NS	NS	NS
	06-02	NS	NS	NS	NS	NS	NS	NS	NS
	08-02	NS	NS	NS	NS	NS	NS	NS	NS
	10-02	1.7	ND	ND	4.7	ND	4.1	ND	ND
	1-03	NS	NS	NS	NS	NS	NS	NS	NS
	3-03	1.9	ND	1.4	5.3	0.84	5.1	ND	0.79

Appendix B

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL= 5	Vinyl Chloride MCL = 2	PCE MCL =5
DDC 53-1S	7/02	ND	ND	ND	0.67	ND	ND	ND	ND
	10/02	ND	ND	ND	ND	ND	ND	ND	ND
	4/03	ND	ND	ND	ND	ND	ND	ND	ND
	8/04	ND	ND	ND	ND	ND	ND	ND	ND
DDC 53-1D	7/02	2.8	ND	1.2	5.2	ND	3.4	1.4	0.86
	10/02	2.4	ND	1.1	3.9	ND	4.2	ND	1.0
	4/03	1.1	ND	ND	1,9	ND	1.9	0.62	ND
	8/03	2.9	ND	ND	4.6	0.67	5.1	ND	1.2
DDC 53-2S	7/02	ND	ND	ND	ND	ND	ND	ND	ND
	10/02	ND	ND	ND	ND	ND	ND	ND	ND
	4/03	ND	ND	ND	ND	ND	ND	ND	ND
	8/03	3.6	ND	1.5	7.0	1.1J	6.6	1.1	1.6
DDC 53-2D	7/02	3.5	ND	2.0	8.5	ND	5.4	1	1.4
	10/02	3.7	ND	2.1	7.5	1.4	6.9	ND	1.7
	4/03	1.6	ND	0.97	3.7	0.64	3.6	0.53	ND(0.85)
	8/03	ND	ND	ND	ND	ND	ND	ND	ND
DDC 53-3S	7/02	ND	ND	ND	ND	ND	ND	ND	ND

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL= 5	Vinyl Chloride MCL = 2	PCE MCL =5
	10/02	ND	ND	ND	ND	ND	ND	ND	ND
	4/03	ND	ND	ND	ND	ND	ND	ND	ND
	8/03	ND	ND	ND	ND	ND	ND	ND	ND
DDC 53-3FD	7/02	ND	ND	ND	ND	ND	ND	ND	ND
DDC 53-3D	7/02	2.9	ND	1.9	8.2	1.2	4.3	0.53	1.0
	10/02	3.3	ND	2.5	8.8	2.0	8	ND	1.8
	4/03	2.3	ND	2.0	7.0	0.97	5.7	0.52	1.0
	8/03	3.2	ND	1.8 J	8.0	1.2 J	7.6	0.55	1.4
DDC 53-4S	7/02	ND	ND	ND	ND	ND	ND	ND	ND
	10/02	ND	ND	ND	ND	ND	ND	ND	ND
	4/03	ND	ND	ND	ND	ND	ND	ND	ND
	8/03	2.7	ND	ND	6.2	1.8	7.5	0.64	2.0
DDC 53-4D	7/02	2.7	ND	1.8	7.4	1.3	4.5	0.56	1.3
	10/02	2.7	ND	2.4	7.8	1.5	7.5	ND	1.9

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL= 5	Vinyl Chloride MCL = 2	PCE MCL =5
	4/03	1.6	ND	0.98	4.0	1.3	5.8	ND	1.3
	8/03	ND	ND	ND	ND	ND	ND	ND	ND
DDC 53-5S	7/02	0.53	ND	ND	1.7	ND	0.6	ND	ND
	10/02	ND	ND	ND	ND	ND	ND	ND	ND
	4/03	ND	ND	ND	ND	ND	ND	ND	ND
	8/03	ND	ND	ND	ND	ND	ND	ND	ND
DDC 53-5D	7/02	2.0	ND	1.5	5.5	1.8	5.7	ND	1.3
	10/02	2.4	ND	2.0	6.3	1.6	7	ND	1.8
	4/03	ND	ND	ND	0.67 J	ND	1.2 J	ND	ND
	8/03	2.6 J	ND	1.3	4.5	1.7	7.1	0.55	2.2
DDC 53-6S	7/02	ND	ND	ND	ND	ND	ND	ND	ND
	10/02	ND	ND	ND	ND	ND	ND	ND	ND
	4/03	ND	ND	ND	ND	ND	ND	ND	ND
	8/05	0.72	ND	ND	no data	ND	ND	ND	ND
DDC 53-6D	7/02	1.4	ND	0.61	2.4	0.71	2.6	ND	0.62
	10/02	1.8	ND	1.0	2.9	ND	2.9	ND	ND
	4/03	0.75	ND	ND	1.3	0.58	2.3	ND	0.63

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL= 5	Vinyl Chloride MCL = 2	PCE MCL =5
	8/03	1.9 J	ND	0.96	3.1	1.1	4.9	ND	1.6
DDC 53-7S	7/02	ND	ND	ND	ND	ND	ND	ND	ND
	10/02	ND	ND	ND	ND	ND	ND	ND	ND
	4/03	ND	ND	ND	ND	ND	ND	ND	ND
	8/03	0.64	ND	ND	ND	ND	ND	ND	ND
DDC 53-7D	7/02	1.0	ND	ND	0.79	ND	ND	ND	ND
	10/02	ND	ND	ND	ND	ND	ND	ND	ND
	4/03	ND	ND	ND	ND	ND	ND	ND	ND
	8/03	0.68	ND	ND	0.62	ND	0.66	ND	ND
DDC 53-8S	7/02	ND	ND	ND	ND	ND	ND	ND	ND
	10/02	ND	ND	ND	ND	ND	ND	ND	ND
	4/03	ND	ND	ND	ND	ND	ND	ND	ND
	8/03	0.82	ND	ND	ND	ND	ND	ND	ND
DDC 53-8D	7/02	3.7	ND	ND	2.0	ND	ND	ND	ND
	10/02	4.1	ND	ND	2.2	ND	ND	ND	ND
	4/03	0.92	ND	ND	0.50	ND	ND	ND	ND
	8/03	1.5	ND	ND	0.72	ND	ND	ND	ND

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL= 5	Vinyl Chloride MCL = 2	PCE MCL =5
DDC 53-9S	7/02	2.1	ND	ND	0.90	ND	ND	ND	ND
	10/02	1.5	ND	ND	ND	ND	ND	ND	ND
	4/03	ND	ND	ND	ND	ND	ND	ND	ND
	8/03	ND	ND	ND	ND	ND	ND	ND	ND
DDC 53-9D	7/02	4.6	ND	ND	1.6	ND	ND	ND	ND
	10/02	6.1	ND	ND	2.4	ND	ND	ND	ND
	4/03	2.1	ND	ND	0.80	ND	ND	ND	ND
	8/03	1.9	ND	ND	0.70	ND	ND	ND	ND
DDC 53-10S	7/02	2.1	ND	ND	1.0	ND	ND	ND	ND
	10/02	1.2	ND	ND	ND	ND	ND	ND	ND
	4/03	5.7	ND	NF	1.8	ND	0.51	ND	ND
	8/03	2.8	ND	ND	0.76	ND	ND	ND	ND
DDC 53-10D	7/02	18.0	0.55	1.4	6.9	ND	1.3	1.7	ND
	10/02	7.4	ND	ND	2.1	ND	ND	ND	ND
	4/03	8.7	ND	ND	2.5	ND	ND	ND	ND
	8/03	4.9	ND	ND	1.3	ND	ND	ND	ND
DDC 53-11S	7/02	3.5	ND	ND	1.6	ND	ND	ND	ND

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL=7	Cis 1,2 DCE MCL=70	1,1,1 TCA MCL=200	TCE MCL=5	Vinyl Chloride MCL=2	PCE MCL=5
	10/02	1.7	ND	ND	ND	ND	ND	ND	ND
	4/03	14	ND	ND	4.8	ND	1.2	ND	ND
	8/03	4.9	ND	ND	1.3	ND	ND	ND	ND
DDC 53-11D	7/02	12.0	ND	0.70	4.5	ND	0.84	1.1	ND
	10/02	14.0	ND	1.0	5.1	ND	1.1	ND	ND
	4/03	8.9 J	ND	ND	2.4	ND	ND	ND	ND
	8/03	6.3	ND	ND	1.7	ND	ND	0.51	ND
DDC 53-12S	7/02	4.5	ND	ND	1.9	ND	ND	ND	ND
	10/02	12.0	ND	ND	4.9	ND	1.0	ND	ND
	4/03	22.0	ND	ND	8.7	ND	2.2	ND	ND
	8/03	11.0	ND	ND	3.9	ND	1.1	0.56	ND
DDC 53-12D	7/02	22.0	0.89	1.6	11.0	ND	2.0	2.0	0.54
	10/02	16.0	ND	ND	7.0	ND	1.0	ND	ND
	4/03	15.0	ND	ND	5.0	ND	0.54	1.2	ND
	8/03	12.0	0.68	ND	4.9	ND	ND	ND	ND
DDC 53-13S	7/02	12.0	0.79	ND	7.4	ND	0.88	ND	ND
	10/02	8.7	ND	ND	5.6	ND	ND	ND	ND

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL= 5	Vinyl Chloride MCL = 2	PCE MCL =5
	4/03	7.9	ND	ND	3.8	ND	1.0	ND	ND
	8/03	19.0	ND	ND	9.0	ND	2.9	1.4	0.78
DDC 53-13D	7/02	41.0	1.3	3.1	25.0	ND	4.8	3.3	1.2
	10/02	36.0	1.0	3.4	24.0	ND	3.9	4.3	1.1
	4/03	9.7	ND	ND	4.7	ND	1.2	ND	ND
	8/03	27.0	1.0	1.8	17.0	ND	1.9	2.4	0.50
DDC 53-14S	7/02	8.5	ND	ND	6.1	ND	1.0	ND	ND
	10/02	11.0	ND	ND	5.9	ND	1.3	ND	ND
	4/03	6.6	ND	ND	3.5	ND	1.3	ND	ND
	8/03	13.0	ND	ND	7.6	0.96	3.1	ND	1.3
DDC 53-14D	7/02	41.0	0.77	4.7	24.0	ND	7.1	4.0	2.6
	10/02	44.0	ND	5.0	26.0	ND	6.9	5.1	3.2
	4/03	8.9	ND	ND	4.8	ND	1.0	ND	ND
	8/03	25.0	1.0	1.8	21.0	ND	ND	ND	0.64
DDC 53-15S	7/02	10.0	ND	ND	6.1	ND	1.4	ND	0.62
	10/02	7.4	ND	ND	5.0	ND	ND	ND	ND
	4/03	2.2	ND	ND	1.6	ND	ND	ND	ND

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL=7	Cis 1,2 DCE MCL=70	1,1,1 TCA MCL=200	TCE MCL=5	Vinyl Chloride MCL=2	PCE MCL=5
	8/03	12.0	ND	ND	9.3	3.8	3.8	ND	1.2
DDC 53-15D	7/02	39.0	1.0	3.5	22.0	ND	7.1	3.0	3.9
	10/02	43.0	1.2	3.5	22.0	ND	6.1	3.4	3.5
	4/03	ND	ND	ND	ND	ND	ND	ND	ND
	8/02	35	1.1	1.8	22.0	ND	2.6	ND	0.90
DDC 53-16S	7/02	6.1	ND	ND	3.8	0.63	1.0	ND	0.59
	10/02	19.0	ND	2.1	13.0	4.9	3.3	ND	ND
	4/03	10.0	ND	ND	7.6	3.4	2.4	ND	ND
	8/03	27.0	ND	3.6	23.0	11.0	7.6	0.88	2.4
DDC 53-16D	7/02	38.0	0.78	3.7	20.0	2.9	7.5	2.8	6.1
	10/02	41.0	ND	3.9	20.0	1.3	6.7	3.3	5.1
	1/03	36.0	1.0	2.0	15.0	ND	4.0	3.0	2.0
	4/03	16.0	ND	ND	6.5	ND	2.2	0.64	0.99
	8/03	31.0	1.2	1.8	16.0	ND	3.7	ND	1.5
DDC-53-17S	7/02	4.9	ND	ND	2.6	0.53	0.72	ND	1.3
	10/02	4.0	ND	ND	1.9	ND	0.75	ND	1.2

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL=7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL= 5	Vinyl Chloride MCL = 2	PCE MCL =5
	4/03	ND	ND	ND	ND	ND	ND	ND	ND
	8/03	2.6	Nd	nd	1.1	0.98	ND	ND	1.2
DDC-53-17D	7/02	19.0	ND	ND(0.83)	4.6	1.9	2.7	0.80	13.0
	10/02	20.0	ND	ND	4.1	1.9	3.5	1.3	11.0
	4/03	0.65	ND	ND	ND	ND	ND	ND	ND
	8/03	18	0.62	ND	3.8	1.2	2.1	1.0	1.2
DDC-53-18S	7/02	2.6	ND	ND	1.5	ND	ND	ND	1.4
	10/02	2.3	ND	ND	0.66	ND	ND	ND	1.9
	4/03	ND	ND	ND	ND	ND	ND	ND	ND
	8/03	0.89	ND	ND	ND	ND	ND	ND	3.0
DDC-53-18D	7/02	8.5	ND	ND	1.9	ND	1.5	ND	12.0
	10/02	13.0	ND	ND	2.2	0.68	2.2	0.66	16
	4/03	13.0	ND	ND	2.0	ND	1.7	ND	11.0
	8/03	12.0	ND	ND	1.7	ND	1.3	0.67	8.6
DDC-53-19S	7/02	1.7	ND	ND	0.53	ND	ND	ND	5.9

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL= 5	Vinyl Chloride MCL = 2	PCE MCL =5
	10/02	1.9	ND	ND	ND	ND	0.42	ND	6.0
	4/03	1.6	ND	ND	ND	ND	ND	ND	3.8
	8/03	0.55	ND	ND	ND	ND	ND	ND	1.5
DDC-53-19D	7/02	4.5	ND	ND	1.0	ND	1.4	ND	21.0
	10/02	3.2	ND	ND	0.65	ND	1.0	ND	19
	4/03	1.9	ND	ND	ND	ND	ND	ND	6.7
	8/03	5.5	ND	ND	1.1	ND	1.1	ND	15
DDC-53-20S	7/02	0.76	ND	ND	ND	ND	ND	ND	4.5
	10/02	0.89	ND	ND	ND	ND	0.55	ND	7.2
	4/03	0.64	ND	ND	ND	ND	ND	ND	4.2
	8/03	ND	ND	ND	ND	ND	ND	NS	0.77
DDC-53-20D	7/02	3.2	ND	ND	0.92	ND	1.6	ND	22.0
	10/02	2.1	ND	ND	0.69	ND	1.6	ND	24.0
	4/03	0.63	ND	ND	ND	ND	ND	ND	6.0
	8/03	2.0	ND	ND	0.87	ND	1.4	ND	23.0

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL= 5	Vinyl Chloride MCL = 2	PCE MCL =5
DDC-53-21S	7/02	ND	ND	ND	ND	ND	ND	ND	3.6
	10/02	0.50	ND	ND	ND	ND	ND	ND	4.9
	4/03	ND	ND	ND	ND	ND	ND	ND	5.0
	8/03	ND	ND	ND	ND	ND	ND	no data	17
DDC-53-21D	7/02	1.1	ND	ND	0.58	ND	1.2	ND	31
	10/02	1.4	ND	ND	0.61	ND	1.5	ND	40.0
	4/03	ND	ND	ND	ND	ND	ND	ND	11.0
	8/03	0.78	ND	ND	ND	ND	1.1	ND	18.0
DDC-53-21D DUP	7/02	1.1	ND (1.0)	ND(1.0)	ND (1.0)	ND (1.0)	1.1	ND(1.0)	34.0
DDC-53-22S	7/02	ND	ND	ND	ND	ND	0.58	ND	9.4
	10/02	ND	ND	ND	ND	ND	ND	ND	3.8
	4/03	ND	ND	ND	ND	ND	ND	ND	ND
	8/03	ND	ND	ND	ND	ND	ND	ND	4.7
DDC-53-22D	7/02	ND(1.4)	ND(1.4)	ND(1.4)	ND(1.4)	ND(1.4)	2.2	ND(1.4)	52.0
	10/02	ND	ND	ND	ND	ND	0.55	ND	8.8
	1/03	0.9	ND	ND	0.7	ND	2.0	ND	34.0

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL= 5	Vinyl Chloride MCL = 2	PCE MCL =5
	4/03	ND	ND	ND	ND	ND	0.52 J	ND	8.2 J
	8/03	ND	ND	ND	ND	ND	1.1	ND	21.O
DDC-53-23S	7/02	ND	ND	ND	ND	ND	0.93	ND	14.0
	10/02	ND	ND	ND	ND	ND	0.57	ND	6.7
	4/03	ND	ND	ND	ND	ND	ND	ND	1.2
	8/03	ND	ND	ND	ND	ND	ND	ND	3.0
DDC-53-23D									
	10/02	ND	ND	ND	0.64	ND	2.7	ND	37
	4/03	ND	ND	ND	ND	ND	0.59	ND	9.4
	8/03	ND	ND	ND	ND	ND	1.9	ND	26.0
DDC-53-24S	7/02	ND	ND	ND	0.65	ND	1.1	ND	11.0
	10/02	ND	ND	ND	ND	ND	0.73	ND	6.0
	4/03	ND	ND	ND	ND	ND	0.81	ND	5.8
	8/03	ND	ND	ND	0.87	ND	1.9	ND	19.0
DDC-53-24D	7/02	ND	ND	ND	1.1	ND	3.6	ND	66.0
	10/02	ND	ND	ND	1.1	ND	4.6	ND	34.0

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL= 5	Vinyl Chloride MCL = 2	PCE MCL =5
	4/03	ND	ND	ND	ND	ND	0.82	ND	12.0
	8/03	ND	ND	ND	ND	ND	2.2	ND	31.0
DDC-53-25S	7/02	ND	ND	ND	0.85	ND	0.90	ND	5.7
	10/02	ND	ND	ND	ND	ND	0.65	ND	3.9
	4/03	ND	ND	ND	ND	ND	ND	ND	1.7
	8/03	ND	ND	ND	ND	ND	ND	ND	2.6
DDC-53-25D	7/02	ND	ND	ND	3.4	ND	5.6	ND	43.0
	10/02	ND	ND	ND	3.0	ND	8.8	ND	43
	4/03	ND	ND	ND	ND	ND	0.67	ND	7.7
	8/03	ND	ND	ND	1.5	ND	5.0	ND	44.0
DDC-1S	7/02	ND	ND	ND	ND	ND	ND	ND	ND
	11/02	1.3	ND	ND	ND	ND	0.51	ND	ND
	4/03	ND	ND	ND	ND	ND	ND	ND	ND
	8/03	ND	ND	ND	ND	ND	ND	ND	ND
DDC-1D	7/02	4.8	ND	1.0	2.4	0.57	ND(2.1)	ND	0.78
	11/02	6.2	ND	ND	3.8	0.78	ND	0.99	1.2
	4/03	3.6	ND	ND	1.7	ND	2.0	ND	1.4

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL= 5	Vinyl Chloride MCL = 2	PCE MCL =5
	8/03	0.80	ND	ND	ND	ND	1.3	ND	3.0
DDC-2S	7/02	ND	ND	ND	ND	ND	ND	ND	ND
	11/02	ND	ND	ND	ND	ND	ND	ND	ND
	4/03	ND	ND	ND	ND	ND	ND	ND	ND
	8/03	ND	ND	ND	ND	ND	ND	ND	ND
DDC-2D	7/02	ND	ND	ND	ND	ND	ND(1.2)	ND	1.1
	11/02	ND	ND	ND	ND	ND	ND	ND	ND
	4/03	ND	ND	ND	0.55	ND	1.6	ND	3.5
	8/03	ND	ND	ND	0.86	ND	1.9	ND	5.7
DDC-3S									
	11/02	23.0	0.64	6.8	19.0	3.8	9.5	7.4	1.6
	4/03	0.66	ND	ND	ND	ND	ND	ND	ND
	8/03	1.1	ND	ND	ND	ND	ND	ND	ND
DDC-3D	7/02	ND(31.0)	ND(31.00)	ND(31.0)	ND(31.0)	ND(31.0)	ND(31.0)	ND(31.0)	ND(31.0)
	11/02	0.94	ND	ND	ND	ND	ND	ND	ND
	4/03	6.0	ND	ND	3.0	0.57	1.6	0.73	ND
	8/03	6.0	ND	1.4	2.7	0.69 J	2.2	ND	ND

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL=7	Cis 1,2 DCE MCL=70	1,1,1 TCA MCL =200	TCE MCL= 5	Vinyl Chloride MCL = 2	PCE MCL =5
DDC-4S	7/02	5.9	ND	0.57	4.0	ND	ND(1.1)	ND	ND
	11/02	6.4	ND	ND	3.8	ND	0.98	0.52	ND
	4/03	3.4	ND	ND	1.6	ND	0.69	ND	ND
	8/03	0.54	ND	ND	ND	ND	ND	ND	ND
DDC-4D	7/02	21.0	ND(0.84)	4.9	12.0	2.0	ND(3.8)	3.0	ND(0.84)
	11/02	27.0	0.62	5.3	15.0	2.2	6.0	4.,9	0.68
	4/03	17	ND	3.6	8.7	1.6	4.2	2.0	0.61
	8/03	4.8	ND	0.94	2.1	Nd	1.8	ND	1.2
DDC-4D DUP	7/02	24.0	ND(0.78)	5.3	13.0	2.2	4.2	3.2	1.2
DDC-5S	7/02	3.2	ND	ND	2.2	ND	ND(0.75)	ND	ND
	11/02	3.1	ND	ND	2.0	ND	0.74	ND	ND
	4/03	1.6	ND	ND	1.0	ND	ND	ND	ND
	8/03	0.55	ND	ND	ND	ND	ND	ND	0.67
DDC-5D	7/02	7.3	ND	2.0	4.6	0.95	ND(2.1)	0.74	ND
	11/02	10.0	ND	2.1	5.1	ND	3.0	1.6	ND

Well	Date	1,1 DCA ACTION LEVEL=810	1,2 DCA MCL=70	1,1 DCE MCL= 7	Cis 1,2 DCE MCL= 70	1,1,1 TCA MCL =200	TCE MCL= 5	Vinyl Chloride MCL = 2	PCE MCL =5
	4/03	5.6	ND	ND	2.9	0.65	2.0	0.54	ND
	8/03	0.86	ND	ND	ND	ND	1.0	ND	1.6
DDC-6S	7/02	6.5	ND	1.3	3.6	ND	ND(1.0)	0.43	ND
	11/02	16.0	ND	2.7	7.8	0.89	3.0	1.9	ND
	4/03	3.6	ND	ND	1.9	ND	0.7	ND	ND
	8/03	3.4	ND	ND	1.6	ND	0.74	ND	ND
DDC-6D	7/02	36.0	0.67	7.3	19.0	1.3	5.0	5.0	0.63
	11/02	33.0	0.83	7.7	25.0	1.2	8.7	10.0	1.1
	1/03	33.0	ND (1.0)	6.0	17.0	ND (1.0)	5.0	5.0	ND (1.0)
	8/03	11.0	ND	2.0	5.2	0.88 J	2.7	0.90	0.97

Appendix C

Table 1 - Summary of VOC Concentrations and Removal Rates

Former Mike Peirce Property
2616 N. Broadway, Wichita, KS

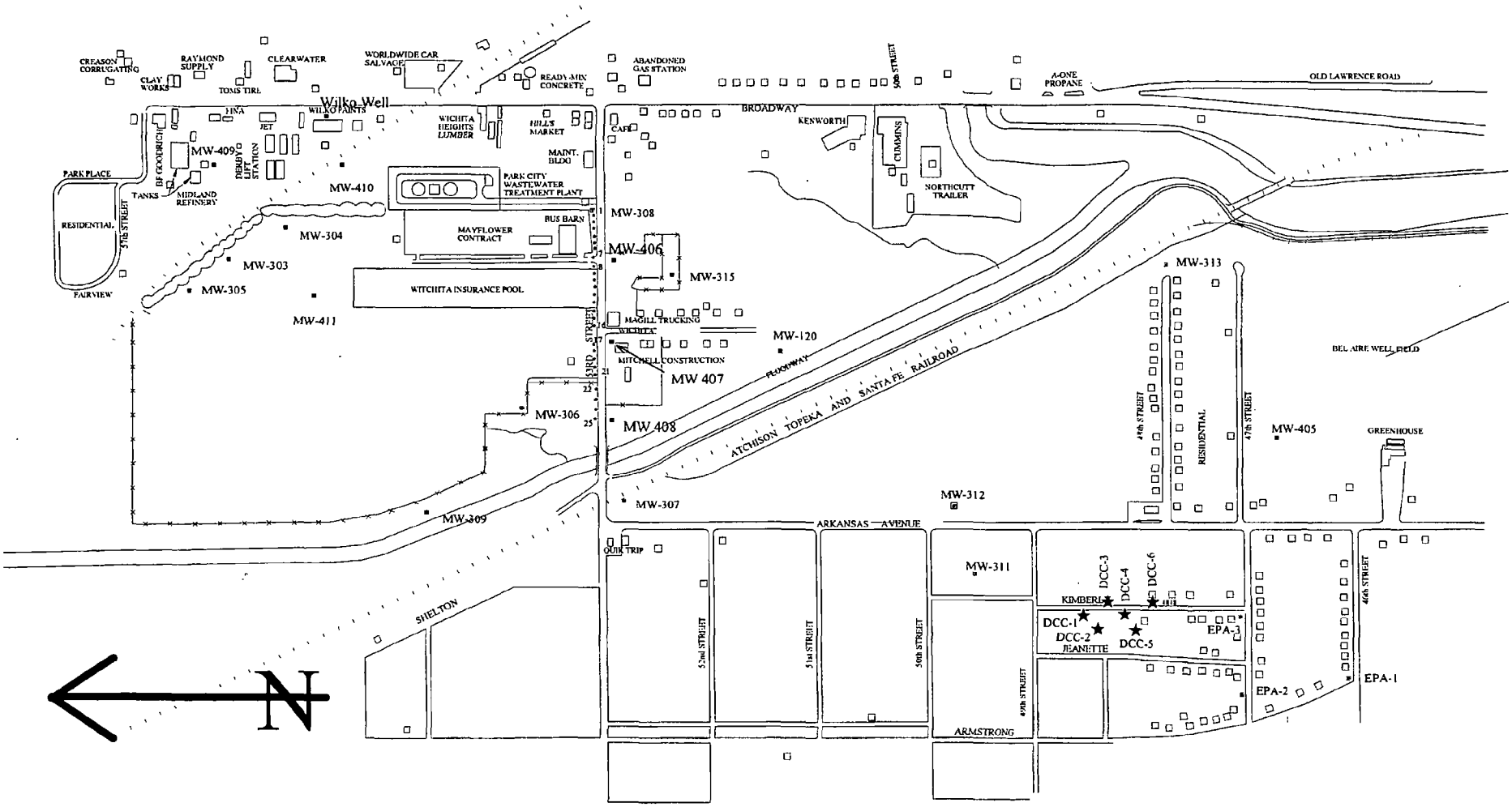
	8/8/2002			8/9/2002			8/13/2002			8/20/2002			8/27/2002			7/14/2003		
Analyte	(ppbV)	lbs/hour	Total lbs	(ppbV)	lbs/hour	Total lbs	(ppbV)	lbs/hour	Total lbs	(ppbV)	lbs/hour	Total lbs	(ppbV)	lbs/hour	Total lbs	(ppbV)	lbs/hour	Total lbs
Cyclohexane	345	0.001	0.015	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000
Carbon Disulfide	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	75	0.000	0.022
m,p-Xylene	5330	0.013	0.203	88600	0.147	3.020	16000	0.060	4.988	34000	0.005	11.138	38500	0.089	14.845	17200	0.042	7.044
1,1,2-Trichloroethane	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000
o-Xylene	ND	0.000	0.000	28500	0.068	1.606	17600	0.044	5.288	28400	0.078	13.102	30600	0.107	18.008	28600	0.072	12.061
1,3,5-Trimethylbenzene	ND	0.000	0.000	4500	0.010	0.347	ND	0.000	0.000	950	0.001	0.184	ND	0.000	0.000	1480	0.004	0.660
1,2,4-Trimethylbenzene	ND	0.000	0.000	3500	0.010	0.347	400	0.001	0.132	800	0.002	0.368	ND	0.000	0.000	1960	0.005	0.808
Methylisobutyl ketone	4829	0.010	0.239	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000
Heptane	1746	0.004	0.060	ND	0.000	0.000	250	0.001	0.088	500	0.001	0.219	850	0.002	0.272	955	0.002	0.258
Hexane	240	0.001	0.015	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000
Tetrahydrofuran	1660	0.003	0.082	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000
Toluene	7350	0.014	0.344	44500	0.100	2.419	20100	0.045	3.109	32700	0.078	13.171	40800	0.098	19.495	15000	0.032	5.931
Benzene	160	0.000	0.004	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000
Tetrachloroethene	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000
Ethylbenzene	5450	0.012	0.298	84000	0.052	1.454	16000	0.036	4.986	31900	0.087	14.888	46700	0.126	21.209	23000	0.035	9.255
Acetone	220	0.000	0.007	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	3e8	0.000	0.085
2-Butanone	4900	0.007	0.187	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000
4-Ethyltoluene	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	1400	0.004	0.440
Total	31675	0.058	1.539	162500	0.389	8.592	71250	0.167	20.078	110000	0.314	58.254	158350	0.422	70.870	90155	0.216	38.280

	12/12/2002			12/30/2002			1/30/2002			3/3/2003			3/27/2003			4/23/2003		
Analyte	(ppbV)	lbs/hour	Total lbs	(ppbV)	lbs/hour	Total lbs	(ppbV)	lbs/hour	Total lbs	(ppbV)	lbs/hour	Total lbs	(ppbV)	lbs/hour	Total lbs	(ppbV)	lbs/hour	Total lbs
Cyclohexane	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000
Carbon Disulfide	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000
m,p-Xylene	30500	0.071	64.547	20000	0.059	25.270	5100	0.015	11.100	ND	0.000	0.000	11100	0.032	24.159	9150	0.027	16.914
1,1,2-Trichloroethane	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	480	0.002	1.148	ND	0.000	0.000
o-Xylene	24800	0.052	47.289	17000	0.051	22.241	5050	0.015	10.991	ND	0.000	0.000	13200	0.038	28.734	11400	0.034	21.011
1,3,5-Trimethylbenzene	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	345	0.001	0.829	330	0.002	1.002
1,2,4-Trimethylbenzene	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	210	0.001	0.517	845	0.003	2.002
Methylisobutyl ketone	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000
Heptane	ND	0.000	0.000	ND	0.000	0.000	30	0.000	0.002	60	0.000	0.164	45	0.000	0.092	55	0.000	0.113
Hexane	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000
Tetrahydrofuran	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000
Toluene	9000	0.018	16.004	5700	0.014	6.251	2060	0.005	4.072	4450	0.011	9.311	3750	0.010	7.663	2720	0.007	5.188
Benzene	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000
Tetrachloroethene	500	0.002	1.505	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000
Ethylbenzene	15800	0.032	28.477	8500	0.024	10.488	2450	0.007	5.392	5350	0.016	11.534	3750	0.017	12.513	4840	0.014	10.535
Acetone	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000
2-Butanone	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	45	0.000	0.007
4-Ethyltoluene	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	ND	0.000	0.000	995	0.001	0.554	2570	0.002	1.592
Total	80000	0.173	156.482	51000	0.149	64.397	14630	0.042	31.556	9730	0.027	20.009	34055	0.101	75.434	30270	0.088	65.671

	5/30/2003			6/30/2003		
Analyte	(ppbV)	lbs/hour	Total lbs	(ppbV)	lbs/hour	Total lbs
Cyclohexane	ND	0.000	0.000	ND	0.000	0.000
Carbon Disulfide	ND	0.000	0.000	ND	0.000	0.000
m,p-Xylene	7750	0.025	16.592	3940	0.017	12.719
1,1,2-Trichloroethane	ND	0.000	0.000	ND	0.000	0.000
o-Xylene	9170	0.027	18.999	9220	0.027	20.655
1,3,5-Trimethylbenzene	450	0.001	1.100	100	0.000	0.300
1,2,4-Trimethylbenzene	835	0.002	1.585	100	0.000	0.299
Methylisobutyl ketone	ND	0.000	0.000	ND	0.000	0.000
Heptane	ND	0.000	0.000	ND	0.000	0.000
Hexane	ND	0.000	0.000	ND	0.000	0.000
Tetrahydrofuran	ND	0.000	0.000	ND	0.000	0.000
Toluene	1170	0.003	2.210	455	0.002	1.143
Benzene	ND	0.000	0.000	ND	0.000	0.000
Tetrachloroethene	ND	0.000	0.000	ND	0.000	0.000
Ethylbenzene	2580	0.008	5.015	1720	0.005	3.743
Acetone	ND	0.000	0.000	ND	0.000	0.000
2-Butanone	ND	0.000	0.000	ND	0.000	0.000
4-Ethyltoluene	360	0.001	0.697	ND	0.000	0.000
Total	82145	0.065	66.375	17260	0.051	38.167

ND - Not Detected above the laboratory Detection Limit.

Appendix D



★ Approximate Location of Treatment Well

57th & N. Broadway Map Showing Monitoring Wells And Treatment Wells